ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Animal Abstract **Element Code:** ARADB16020
Data Sensitivity: YES

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Gyalopion quadrangulare*
COMMON NAME: Thornscrub Hook-Nosed Snake, Desert Hooknose Snake
SYNONYMS: *Ficimia quadrangularis, Ficimia desortum, Gyalopion quadrangularis*
FAMILY: Serpentes:Colubridae

AUTHOR, PUBLICATION: Gunther 1893:99, plate 35, fig A.

TYPE LOCALITY: "Presidio, near Mazatlan, Sinaloa"

TYPE SPECIMEN: NHMUK 1946.1.1.75, female specimen. Collected by A Forrer.

TAXONOMIC UNIQUENESS: Two species in genus, both occur in Arizona; *G. quadrangulare* is monotypic.

DESCRIPTION: Small, stout bodied snake with a relatively short tail (Hardy 1975b). Total snout-vent length for males averages 87-305 mm (3.43-12.01 in) and 91-280 mm (3.58-11.02 in) for females (Hardy 1975a, Hardy 1976). The longest individual recorded measured ca. 354 mm (13.94 in) (Hardy 1975a). Tail length comprises 10-16% of total length (Hardy 1976). This snake has a prominent upturned snout, with 16-41 black saddles on the back. The large blotch on the head is fused with the crossband on the neck. The sides are marked by a red-orange stripe, broken by the black saddle blotches. Ground color between saddles and red bands is off-white to pearl. Venter is unmarked white to off-white. Scales are usually smooth, and in 17 rows at midbody. The anal plate is single (Hardy 1975a, Holycross and Mitchell 2020).

AIDS TO IDENTIFICATION: Hatchlings of *Rhinocheilus lecontei (*Long-nosed Snake) are similar in color and pattern, but he upturned snout of *G. quadrangulare* distinguishes this snake (Holycross and Mitchell 2020).

ILLUSTRATIONS: Black and white drawing (Stebbins 1966: plate 34)
Black and white drawing (Stebbins 1985: plate 40)
Color Photo (Holycross, in Holycross and Mitchell 2020, pg. 155)
Color Photo (Babb, in Holycross and Mitchell 2020, pg. 157)

TOTAL RANGE: Sierra Madre Occidental and Pacific Coast from Nayarit, Mexico to Santa Cruz, County, Arizona (Holycross and Mitchell 2020).

RANGE WITHIN ARIZONA: Known from Atascosa, Pajarito, Patagonia, and Santa Rita mountains, Santa Cruz County (Holycross and Mitchell 2020).

SPECIES BIOLOGY AND POPULATION TRENDS

BIOLOGY: Very little is known of this species habits, likely chiefly fossorial, nocturnal, and secretive (Holycross and Mitchell 2020). Surface activity seems to increase substantially during the rainy season (Holycross and Mitchell 2020). Predation documented by Arizona Coral Snake (*Micruroides euryxanthus*) and Forrer's Leopard Frog (*Rana forreri*) (Rossi and Rossi 2003, Tanikawa et al. 2016). Other carnivores likely prey on this snake (Holycross and Mitchell 2020). When threatened, will strike (Holycross and Mitchell 2020). Anti-predator cloacal "popping" has been documented (Babb and Kandiyeli 2015). Captive snakes have lived a maximum of 4 years, 5 months (Rossi and Rossi 2003).

REPRODUCTION: Oviparous. Clutch sizes of 3-6 and 3-5 have been reported (Holm 2008, Goldberg 2003). Mating behavior and phenology have not been well-studied, though captured snakes show breeding characteristics from June to September (Spermiogenesis, gravid females, females with follicles >9mm in length) (Greer 1966, Holm 2008, Goldberg 2003).

FOOD HABITS: Insectivorous. Reports of wild insectivory include scorpions and spiders (Hardy 1975a, Bogert and Oliver 1945, Woodin 1962). Analysis of prey remains in museum specimens identified insects, spiders, scorpions, and unidentifiable arthropod remains (Babb et al. 2005).

HABITAT: Associated with canyons, arroyos, and drainages (Holycross and Mitchell 2020). Per Stebbins (1985), "found in loose soil of canyon bottoms and outwash plains in Mexico and Arizona. It occurs in rolling foothills of mesquite grasslands in Arizona, including partly cultivated sections." Per Holycross and Mitchell (2020) "likely uses deep leaf litter and duff as refugia."

ELEVATION: 1,037 - 1,340 m (3,400 - 4,400 ft) in Arizona. Found from sea level to 1,340 m (4,400 ft) throughout its range (Stebbins 2003, Holycross and Mitchell 2020).

PLANT COMMUNITY: In Mexico; Subtropical Thornscrub, Tropical Semiarid Forest, and Tropical Dry Forest (Zweifel and Norris 1955). In Arizona, Semidesert Grassland and Madrean Evergreen Woodland (Holycross and Mitchell 2020).

POPULATION TRENDS: Limited data, appears stable (Holycross and Mitchell 2020).

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS:	None
STATE STATUS:	2 (AZGFD, AWCS 2022) [1B (AGFD SWAP 2012)]
OTHER STATUS:	PR, Determined Subject to Special Protection in Mexico (NORMA

Oficial Mexicana NOM-059-SEMARNAT-2010, 1994)
Forest Service Sensitive Species (USDA FS Region 3 2013, 2007)

MANAGEMENT FACTORS: None

PROTECTIVE MEASURES TAKEN: None

SUGGESTED PROJECTS: Distribution, habitat, population and life history studies.

LAND MANAGEMENT/OWNERSHIP: USFS – Coronado National Forest; ALD – State Trust Land; Private.

SOURCES OF FURTHER INFORMATION

REFERENCES:

Arizona Game and Fish Department. 2012. Arizona's State Wildlife Action Plan 2012-2022. Phoenix, AZ.

Arizona Game and Fish Department. 2022. Arizona Wildlife Conservation Strategy: 2022-2032. Arizona Game and Fish Department, Phoenix, Arizona. 378 pages.

Babb, R.D., Bradley, G.L., Brennan, T.C. and Holycross, A.T., 2005. Preliminary assessment of the diet of *Gyalopion quadrangulare* (Serpentes: Colubridae). The Southwestern Naturalist, 50(3), pp.390-392.

Babb, R.D., D.D. Kandiyeli. 2015. *Gyalopion quadrangulare* (Thornscrub Hook-nosed Snake). Defensive behavior/Cloacal popping. Herpetological Review 46:273.

Behler, J.l. and F.W. King. 1979. The Audubon Society field guide to North American reptiles and amphibians. Alfred A. Knopf, New York. Pp.612-613.

Bogert, C.M. and Oliver, J.A., 1945. A preliminary analysis of the herpetofauna of Sonora.

Fowlie, J.A.,M.D. 1965. The snakes of Arizona. Azul Quinta Press, Fallbrook, California. Pp.42.

Goldberg, S.R. 2003. *Gyalopion quadrangulare* (Thorn-scrub Hook-nosed Snake). Reproduction. Herpetological Review. 34:67-68.

Greer, A.E., 1966. Viviparity and oviparity in the snake genera *Conopsis, Toluca, Gyalopion*, and *Ficimia*, with comments on *Tomodon* and *Helicops*. Copeia, 1966(2), pp.371-373.

Hardy, L.M. 1975a. A systematic revision of the colubrid snake genus *Gyalopion*. J. Herp. 9:107-132.

Hardy, L.M., 1975b. Comparative morphology and evolutionary relationships of the colubrid snake genera *Pseudoficimia, Ficimia,* and *Gyalopion*. Journal of Herpetology, pp.323-336.

Hardy, L.M., 1976. *Gyalopion, G. canum, G. quadrangularis*. Catalogue of American Amphibians and Reptiles (CAAR).

Holm, P.A., 2008. Phylogenetic biology of the burrowing snake tribe Sonorini (Colubridae). The University of Arizona.

Holycross, A.T. and Mitchell, J.C. eds., 2020. Snakes of Arizona. ECO Publishing.

Lowe, C.H. 1964. Amphibians and reptiles. The vertebrates of Arizona. University of Arizona Press, Tucson. Pp.170.

Rossi, J. and Rossi, R., 2003. Snakes of the United States and Canada: natural history and care in captivity. Malabar, Fla.: Krieger Publishing Company.

SAAR Catalogue #182.1

Schwalbe, C. 1990. Thornscrub hook-nosed snake. Ariz. Game and Fish Dept. Wildlife Views, Phoenix. p.18.

Secretaría de Medio Ambiente y Recursos Naturales. 2010. NORMA Oficial Mexicana NOM-059-SEMARNAT-2010, Protección ambiental-Especies nativas de México de flora y fauna silvestres-Categorías de riesgo y especificaciones para su inclusión, exclusión o cambio-Lista de especies en riesgo.

Shaw, C.E. and S. Campbell. 1974. Snakes of the America West. Alfred A. Knopf, New York. Pp.161.

Stebbins, R.C. 1966. A field guide to western reptiles and amphibians. Houghton Mifflin Company, Boston. Pp.179.

Stebbins, R.C. 1985. A field guide to western reptiles and amphibians. Second edition, revised. Houghton Mifflin Company, Boston. p. 216.

Tanikawa, L., Kunta, S., Lee, M., Sirivella, S., Grubb, D., Rorabaugh, J.C. 2016. Predation of Thornscrub Hooked-nosed Snake (*Gyalopion quadrangulare*) by a Forrer's Leopard Frog (*Lithobates forreri*). Sonoran Herpetologist. 29:24-25.

USDA, Forest Service Region 3. 2007. Regional Forester's Sensitive Species List.

USDA, Forest Service Region 3. 2013. Regional Forester's Sensitive Species List.

Woodin, W.H., 1962. Ficimia quadrangularis, a snake new to the fauna of the United States. Herpetologica, pp.52-53.

Zweifel, R.G. and Norris, K.S., 1955. Contribution to the herpetology of Sonora, Mexico: Description of new subspecies of snakes (*Micruroides euryxanthus* and *Lampropeltis getulus*) and miscellaneous collecting notes. Amer. Mid. Nat, 54(1), pp.230-249.

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ADDITIONAL INFORMATION:

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